IN THE CLAIMS

A listing of all claims and their current status in accordance with 37 C.F.R. § 1.121(c) is provided below. New claim 25 is presently added. No claims are presently canceled or amended.

Listing of the Claims

1. (original) A method of measuring a physiological parameter, comprising:

obtaining a first signal derived from electromagnetic energy transmitted through a tissue portion at a first wavelength, said first signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said first wavelength water is a dominant absorber of electromagnetic energy in the tissue portion;

obtaining a second signal derived from electromagnetic energy transmitted through a tissue portion at a second wavelength, said second signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said second wavelength hemoglobin is a dominant absorber of electromagnetic energy in the tissue portion; and

combining said first signal and said second signal to generate a combined signal comprising a plethysmograph, said combined signal having a signal portion corresponding with motion-related events that is smaller than that present in said first signal or said second signal.

2. (original) The method of claim 1 wherein at said first wavelength water is a stronger absorber of electromagnetic energy than hemoglobin in the tissue portion.

3. (original) The method of claim 1 wherein at said second wavelength hemoglobin is a stronger absorber of electromagnetic energy than water in the tissue portion.

4. (original) The method of claim 1 wherein said first wavelength is in the range between approximately 900 and 1850 nm.

5. (original) The method of claim 1 wherein said first wavelength is in the range between approximately 1100 and 1400 nm.

6. (original) The method of claim 1 wherein said first wavelength is in the range between approximately 1150 and 1250 nm.

7. (original) The method of claim 1 wherein said first wavelength is approximately 1185 nm.

8. (original) The method of claim 1 wherein said second wavelength is in the range between approximately 600 and 950 nm.

9. (original) The method of claim 1 wherein said combing comprises applying a multiplier to said first signal to obtain a scaled first signal and subtracting the scaled first signal from said second signal.

10. (original) The method of claim 9 wherein said multiplier is a function of the ratio of the absorption of electromagnetic energy in the tissue portion by hemoglobin at said first wavelength to that at said second wavelength.

11. (original) The method of claim 1 wherein said physiological parameter is a pulse rate.

12. (original) The method of claim 1 further comprising:

obtaining a third signal derived from electromagnetic energy transmitted through a tissue portion at a third wavelength, said third signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said third wavelength hemoglobin is a dominant absorber of electromagnetic energy in the tissue portion; and

combining said first signal and said third signal to generate a second combined signal comprising a plethysmograph, said second combined signal having a signal portion corresponding with motion-related events that is smaller than that present in said first signal or said third signal.

13. (original) The method of claim 12 further comprising: combining said combined signal with said second combined signal to form a combination; and estimating an oxygen saturation value using said combination.

14. (original) An apparatus for measuring a physiological parameter, comprising:

means for obtaining a first signal derived from electromagnetic energy transmitted through a tissue portion at a first wavelength, said first signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said first wavelength water is a dominant absorber of electromagnetic energy in the tissue portion;

means for obtaining a second signal derived from electromagnetic energy transmitted through a tissue portion at a second wavelength, said second signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said second wavelength hemoglobin is a dominant absorber of electromagnetic energy in the tissue portion; and

means for combining said first signal and said second signal to generate a combined signal comprising a plethysmograph, said combined signal having a signal portion corresponding with motion-related events that is smaller than that present in said first signal or said second signal.

15. (original) The apparatus of claim 14 wherein said means for obtaining a first signal comprise: light emission optics configured to direct electromagnetic energy at said tissue location; and light detection optics configured to receive radiation from said tissue location.

16. (original) The apparatus of claim 15 wherein said light emission optics are configured to deliver electromagnetic energy at a wavelength in the range between approximately 900 and 1850 nm.

17. (original) The apparatus of claim 15 wherein said light emission optics are configured to deliver electromagnetic energy at a wavelength in the range between approximately 1100 and 1400 nm.

18. (original) The apparatus of claim 15 wherein said light emission optics are configured to deliver electromagnetic energy at a wavelength in the range between approximately 1150 and 1250 nm.

19. (original) The apparatus of claim 15 wherein said light emission optics are configured to deliver electromagnetic energy at approximately 1185 nm.

20. (original) The apparatus of claim 14 wherein said means for combining comprises means for applying a multiplier to said first signal to obtain a scaled first signal and subtracting the scaled first signal from said second signal.

21. (original) The apparatus of claim 14 wherein said means for combining comprises a processing device configured to combine said first signal and said second signal to generate a combined signal comprising a plethysmograph, said combined signal having a signal portion corresponding with motion-related events that is smaller than that present in said first signal or said second signal.

22. (original) The apparatus of claim 14 further comprising:

means for obtaining a third signal derived from electromagnetic energy transmitted through a tissue portion at a third wavelength, said third signal including a signal portion corresponding with motion-related events and a signal portion corresponding with arterial pulsation events, wherein at said third wavelength hemoglobin is a dominant absorber of electromagnetic energy in the tissue portion; and

means for combining said first signal and said third signal to generate a second combined signal comprising a plethysmograph, said second combined signal having a signal portion corresponding with motion-related events that is smaller than that present in said first signal or said third signal.

23. (original) The apparatus of claim 22 further comprising: means for combining said combined signal with said second combined signal to form a combination; and means for estimating an oxygen saturation value using said combination.

24. (original) The apparatus of claim 14 wherein said physiological parameter is a pulse rate.

25. (new) A method of measuring a physiological parameter, comprising:

obtaining a first absorbance signal at a first wavelength, wherein at the first wavelength water is a dominant absorber of electromagnetic energy;

obtaining a second signal at a second wavelength, wherein at the second wavelength hemoglobin is a dominant absorber of electromagnetic energy;

obtaining a third signal at a third wavelength, wherein at the third wavelength hemoglobin is a dominant absorber of electromagnetic energy;

combining the first signal and the second signal to generate a first combined signal having a signal portion corresponding with motion-related events that is smaller than that present in the second signal;

combining the first signal and the third signal to generate a second combined signal having a signal portion corresponding with motion-related events that is smaller than that present in the third signal; and

using the first combined signal with the second combined signal to estimate an oxygen saturation value.